

an output signal processor for processing deinterleaved output data.

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3. In a system for receiving and adaptively processing a video signal encoded in one of a plurality of different signal formats suitable for satellite, terrestrial or cable transmission modes, apparatus comprising:

an adaptive decoder for providing a decoded output from an input signal encoded at different times in accordance with different ones of said plurality of different signal formats;

an adaptive deinterleaver for deinterleaving said decoded output in accordance with a deinterleaving function selected from a plurality of deinterleaving functions, wherein said adaptive deinterleaver is configured with said selected deinterleaving function; and

an output signal processor for processing deinterleaved output data.

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4. Apparatus according to one of claims ²³1 and ²⁴3, wherein said adaptive decoder is configured with a selected decoding function to decode said input signal.

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5. Apparatus according to one of claims ²³1 and ²⁴3, wherein said adaptive decoder is an adaptive trellis decoder configured with a selected decoding function to decode said input signal.

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6. Apparatus according to one of claims ²³1 and ²⁴3, wherein said output processor includes a means for reordering said deinterleaved output data.

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7. Apparatus according to one of claims ²³1 and ²⁴3, wherein said output processor includes a descrambler for descrambling said output data.

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8. Apparatus according to one of claims ²³1 or ²⁴3, wherein said output signal processor includes an adaptive derandomizer to reorder said deinterleaved output data where necessary for restoring it to an original format thereof before any randomization performed for transmission purposes.

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~~9~~. Apparatus according to one of claims ²³~~2~~ and ²⁴~~3~~, further including a demodulator for demodulating a modulated video input signal to provide said input signal encoded in different signal formats.

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~~10~~. Apparatus according to one of claims ²³~~2~~ and ²⁴~~3~~, further including a demodulator for demodulating a modulated video input signal to provide each said input signal encoded in accordance with one of said plurality of different signal formats.

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~~11~~. Apparatus according to one of claims ²³~~2~~ and ²⁴~~3~~, further including a differential decoder for providing a differentially decoded output as said decoded output when said encoded video signal exhibits a predetermined format.

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~~12~~. Apparatus according to claim ³⁰~~9~~, wherein said demodulator demodulates an input signal having a carrier with plural-phase amplitude.

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~~13~~. Apparatus according to claim ³¹~~10~~, wherein said demodulator demodulates an input signal having a carrier with plural-phase amplitude.

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~~14~~. Apparatus according to claim ³⁰~~9~~, wherein said demodulator demodulates a QAM modulated video input signal.

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~~15~~. Apparatus according to claim ³¹~~10~~, wherein said demodulator demodulates a QAM modulated video input signal.

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~~16~~. Apparatus according to one of claims ²³~~2~~ and ²⁴~~3~~, further including a means for processing the data for being interleaved as a function of said different signal formats and different symbol constellations of said input signal.

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~~17~~. Apparatus according to one of claims ²³~~2~~ and ²⁴~~3~~, wherein said adaptive decoder has circuitry connected therewith for selectively mapping data for being deinterleaved as a function of said different signal formats and different symbol constellations of said input signal.

³⁹
~~18~~. Apparatus according to one of claims ²³~~2~~ and ²⁴~~3~~, further including a means for processing the data as a function of said different signal formats and different symbol constellations of said input signal to be deinterleaved.

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~~19.~~ Apparatus according to claim ³⁷~~18~~, wherein one of said different signal formats is a vestigial-sideband amplitude-modulated input signal with a one-dimensional symbol constellation, and wherein another of said different signal formats is a quadrature-amplitude-modulated (QAM) input signal with a two-dimensional symbol constellation.

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~~20.~~ Apparatus according to claim ³⁸~~17~~, wherein one of said different signal formats is a vestigial-sideband amplitude-modulated input signal with a one-dimensional symbol constellation, and wherein another of said different signal formats is a quadrature-amplitude-modulated (QAM) input signal with a two-dimensional symbol constellation.

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~~21.~~ Apparatus according to claim ³⁹~~18~~, wherein one of said different signal formats is a vestigial-sideband amplitude-modulated input signal with a one-dimensional symbol constellation, and wherein another of said different signal formats is a quadrature-amplitude-modulated (QAM) input signal with a two-dimensional symbol constellation.

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~~22.~~ Apparatus according to one of claims ²³~~7~~ and ²⁴~~8~~, wherein said adaptive decoder and adaptive deinterleaver are automatically configured to be compatible with the format of said encoded video signal.

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~~23.~~ Apparatus according to one of claims ²³~~7~~ and ²⁴~~8~~, wherein said adaptive decoder and adaptive deinterleaver are automatically configured to be compatible with the format of said input signal in response to a control signal generated by detection apparatus for determining the format of said input signal.

⁴⁵
~~24.~~ Apparatus according to one of claims ²³~~7~~ and ²⁴~~8~~, further including an adaptive error processor for correcting errors in said deinterleaved output data, said error processor adapting between different signal formats by changing at least one of: (a) error function type, (b) error correction code length, and (c) data packet length.

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~~25.~~ Apparatus according to claim ⁴⁴~~23~~, further including an adaptive error processor for correcting errors in said deinterleaved output data, said error processor responding to said control signal to adapt between different ones of said plurality of signal formats by changing at least one of: (a) error function type, (b) error correction code length, and (c) data packet length.

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~~26~~. Apparatus according to claim ⁴⁵~~24~~, wherein said adaptive error processor adapts between different signal formats by adapting to parity data in said deinterleaved output data.

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~~27~~. Apparatus according to one of claims ²³~~2~~ and ²⁴~~3~~, further including: an adaptive error processor for correcting errors in said deinterleaved output data, said error processor adapting between ones of said plurality of different signal formats by changing at least one of: (a) error function type, (b) error correction code length, and (c) data packet length.

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~~28~~. Apparatus according to claim ⁴⁵~~24~~, wherein said adaptive error processor is a Reed-Solomon decoder.

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~~29~~. Apparatus according to claim ⁴⁶~~25~~, wherein said adaptive error processor is a Reed-Solomon decoder.

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~~30~~. Apparatus according to claim ⁴⁷~~26~~, wherein said adaptive error processor is a Reed-Solomon decoder.

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~~31~~. Apparatus according to claim ⁴⁸~~27~~, wherein said adaptive error processor is a Reed-Solomon decoder.

⁵³
~~32~~. In a system for receiving and adaptively processing a video signal encoded in one of a plurality of different formats suitable for satellite, terrestrial or cable transmission modes, apparatus comprising:

an adaptive decoder for providing a decoded output from an input signal encoded in different signal formats for different transmission modes;

an adaptive error decoder for detecting and correcting errors in said decoded output, said error decoder adapting between different signal formats by changing at least one of: (a) error function type, (b) error correction code length, and (c) data packet length; and

an output signal processor for processing said error corrected data.

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~~33~~. In a system for receiving and adaptively processing a video signal encoded in one of a plurality of different formats suitable for satellite, terrestrial or cable transmission modes, apparatus comprising:

an adaptive decoder for providing a decoded output from an input signal encoded at different times in accordance with different ones of said plurality of different signal formats;

an adaptive error decoder for detecting and correcting errors in said decoded output, said error decoder adapting between ones of said plurality of different signal formats by changing at least one of:

- (a) error function type,
- (b) error correction code length, and
- (c) data packet length; and

an output signal processor for processing said error corrected data.

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~~54~~ Apparatus according to one of claims ⁵³~~32~~ and ⁵⁴~~33~~, further including a differential decoder for providing a differentially decoded output as said decoded output when said encoded video signal exhibits a predetermined format.

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~~35~~ Apparatus according to one of claims ⁵³~~32~~ and ⁵⁴~~33~~, wherein said adaptive error decoder is a Reed-Solomon decoder.

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~~36~~ In a system for receiving and adaptively processing a video signal encoded in one of a plurality of different formats suitable for satellite, terrestrial or cable transmission, apparatus comprising:

an adaptive deinterleaver for deinterleaving said encoded video signal encoded in one of a plurality of deinterleaving functions; and

an adaptive error decoder for detecting and correcting errors in said deinterleaved output, said error decoder adapting between different signal formats by changing at least one of: (a) error function type, (b) error correction code length, and (c) data packet length; and

an output signal processor for processing said error corrected data.

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~~37~~ In a system for receiving and adaptively processing a video signal encoded in one of a plurality of different signal formats suitable for satellite, terrestrial or cable transmission, apparatus comprising:

an adaptive deinterleaver for deinterleaving said decoded video signal in accordance with a deinterleaving function selected from a plurality of deinterleaving functions; and

an adaptive error decoder for detecting and correcting errors in said deinterleaved output, said error decoder adapting between ones of said plurality of different signal formats by changing at least one of: (a) error function type. (b) error correction code length, and (c) data packet length; and

an output signal processor for processing said error corrected data.

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~~38~~. Apparatus according to one of claims ⁵⁷~~36~~ and ⁵⁸~~37~~, wherein said adaptive error decoder function is a Reed-Solomon function.

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~~39~~. Apparatus according to one of claims ⁵⁷~~36~~ and ⁵⁸~~37~~, wherein said adaptive error decoder is a Reed-Solomon decoder.

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~~40~~. Apparatus according to one of claims ⁵⁷~~36~~ and ⁵⁸~~37~~, wherein said adaptive deinterleaver is configured with said selected deinterleaving function.

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~~41~~. A method for adaptively processing a video signal encoded in one of a plurality of different formats suitable for satellite, terrestrial or cable transmission modes, comprising the steps of:

adaptively decoding an input signal to provide a decoded output, said input signal being encoded in different signal formats for different transmission modes;

selecting a deinterleaving function from a plurality of deinterleaving functions;

configuring an adaptive deinterleaver with said selected deinterleaving function;

adaptively deinterleaving said decoded output using said selected deinterleaving function; and

processing said deinterleaved data.

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~~42~~. A method for adaptively processing a video signal encoded in one of a plurality of different formats suitable for satellite, terrestrial or cable transmission modes, comprising the steps of:

adaptively decoding an input signal, as encoded at different times in accordance with different ones of said plurality of different signal formats, to provide a decoded output signal;

selecting a deinterleaving function from a plurality of deinterleaving functions;

configuring an adaptive deinterleaver with said selected deinterleaving function;

adaptively deinterleaving said decoded output signal using said adaptive deinterleaver configured with said selected deinterleaving function; and

processing said deinterleaved data.

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43. A method of adaptively processing a video signal encoded in one of a plurality of different formats suitable for satellite, terrestrial or cable transmission, comprising the steps of:

adaptively decoding an input signal encoded in different signal formats for different transmission modes to provide a decoded output;

adaptively detecting errors in said decoded output;

adaptively correcting said detected errors in said decoded output by changing at least one of: (a) error function type, (b) error correction code length, and (c) data packet length; and

processing said error corrected data.

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44. A method of adaptively processing a video signal encoded in one of a plurality of different formats suitable for satellite, terrestrial or cable transmission, comprising the steps of:

adaptively decoding an input signal, as encoded at different times in accordance with different ones of said plurality of different signal formats, to provide a decoded output signal;

adaptively detecting errors in said decoded output signal;

adaptively correcting said detected errors in said decoded output signal by changing at least one of: (a) error function type, (b) error correction code length, and (c) data packet length; and

processing said error corrected data.

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45. A method of adaptively processing a video signal encoded in one of a plurality of different formats suitable for satellite, terrestrial or cable transmission, comprising the steps of:

adaptively decoding an input signal encoded in different signal formats for different transmission modes, to produce a decoded output;

selecting a deinterleaving function from a plurality of deinterleaving functions;

adaptively deinterleaving said decoded output using said selected deinterleaving function;

detecting errors in deinterleaved output of different signal formats;

adaptively correcting an error in deinterleaved output of different signal formats by changing at least one of: (a) error function type, (b) error correction code length, and (c) data packet length; and

processing said error corrected data.

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46. A method for adaptively processing a video signal encoded in one of a plurality of different formats suitable for satellite, terrestrial or cable transmission, comprising the steps of:

adaptively decoding an input signal, as encoded at different times in accordance with different ones of said plurality of different signal formats, to provide a decoded output signal;

selecting a deinterleaving function from a plurality of deinterleaving functions;

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